General Purpose LCD Monitors

UML-150-90 | UML-170-90 | UML-190-90

BOSCH

en User's Manual

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1 Safety

1.1 Important Safety Instructions

Read, follow, and retain for future reference all of the following safety instructions. Heed all warnings on the unit and in the operating instructions before operating the unit.

1. **Cleaning -** Unplug the unit from the outlet before cleaning. Follow any instructions provided with the unit. Generally, using a dry cloth for cleaning is sufficient, but a moist fluff-free cloth or leather shammy may also be used. Do not use liquid cleaners or aerosol cleaners.
2. **Heat Sources -** Do not install the unit near any heat sources such as radiators, heaters, stoves, or other equipment (including amplifiers) that produce heat.
3. **Ventilation -** Any openings in the unit enclosure are provided for ventilation to prevent overheating and ensure reliable operation. Do not block or cover these openings. Do not place the unit in an enclosure unless proper ventilation is provided, or the manufacturer's instructions have been adhered to.
4. **Water -** Do not use this unit near water, for example near a bathtub, washbowl, sink, laundry basket, in a damp or wet basement, near a swimming pool, in an outdoor installation, or in any area classified as a wet location. To reduce the risk of fire or electrical shock, do not expose this unit to rain or moisture.
5. **Object and liquid entry -** Never push objects of any kind into this unit through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electrical shock. Never spill liquid of any kind on the unit. Do not place objects filled with liquids, such as vases or cups, on the unit.
6. **Lightning -** For added protection during a lightning storm, or when leaving this unit unattended and unused for long periods, unplug the unit from the wall outlet and disconnect the cable system. This will prevent damage to the unit from lightning and power line surges.
7. **Controls adjustment -** Adjust only those controls specified in the operating instructions. Improper adjustment of other controls may cause damage to the unit. Use of controls or adjustments, or performance of procedures other than those specified, may result in hazardous radiation exposure.
8. **Overloading -** Do not overload outlets and extension cords. This can cause fire or electrical shock.
9. **Power cord and plug protection -** Protect the plug and power cord from foot traffic, being pinched by items placed upon or against them at electrical outlets, and its exit from the unit. For units intended to operate with 230 VAC, 50 Hz, the input and output power cord must comply with the latest versions of *IEC Publication 227* or *IEC Publication 245*.
10. **Power disconnect -** Units with or without ON/OFF switches have power supplied to the unit whenever the power cord is inserted into the power source; however, the unit is operational only when the ON/OFF switch is in the ON position. The power cord is the main power disconnect device for switching off the voltage for all units.

11. **Power sources -** Operate the unit only from the type of power source indicated on the label. Before proceeding, be sure to disconnect the power from the cable to be installed into the unit.
    - For battery powered units, refer to the operating instructions.
    - For external power supplied units, use only the recommended or approved power supplies.
    - For limited power source units, this power source must comply with *EN60950*. Substitutions may damage the unit or cause fire or shock.
    - For 24 VAC units, voltage applied to the unit's power input should not exceed ±10%, or 28 VAC. User-supplied wiring must comply with local electrical codes (Class 2 power levels). Do not ground the supply at the terminals or at the unit's power supply terminals.
    - If unsure of the type of power supply to use, contact your dealer or local power company.
12. **Servicing -** Do not attempt to service this unit yourself. Opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
13. **Damage requiring service -** Unplug the unit from the main AC power source and refer servicing to qualified service personnel when any damage to the equipment has occurred, such as:
    - the power supply cord or plug is damaged;
    - exposure to moisture, water, and/or inclement weather (rain, snow, etc.);
    - liquid has been spilled in or on the equipment;
    - an object has fallen into the unit;
    - unit has been dropped or the unit cabinet is damaged;
    - unit exhibits a distinct change in performance;
    - unit does not operate normally when the user correctly follows the operating instructions.
14. **Replacement parts -** Be sure the service technician uses replacement parts specified by the manufacturer, or that have the same characteristics as the original parts. Unauthorized substitutions may cause fire, electrical shock, or other hazards.
15. **Safety check -** Safety checks should be performed upon completion of service or repairs to the unit to ensure proper operating condition.
16. **Installation -** Install in accordance with the manufacturer's instructions and in accordance with applicable local codes.
17. **Attachments, changes or modifications -** Only use attachments/accessories specified by the manufacturer. Any change or modification of the equipment, not expressly approved by Bosch, could void the warranty or, in the case of an authorization agreement, authority to operate the equipment.

1.2 Safety Precautions

DANGER! High risk:
This symbol indicates an imminently hazardous situation such as “Dangerous Voltage” inside the product. If not avoided, this will result in an electrical shock, serious bodily injury, or death.

WARNING! Medium risk:
Indicates a potentially hazardous situation. If not avoided, this could result in serious bodily injury or death.

CAUTION! Medium Risk
Indicates a potentially hazardous situation. If not avoided, this may result in minor or moderate injury. Alerts the user to important instructions accompanying the unit.

CAUTION! Low risk: (without safety alert symbol)
Indicates a potentially hazardous situation. If not avoided, this may result in property damage or risk of damage to the unit.

NOTICE!
This symbol indicates information or a company policy that relates directly or indirectly to the safety of personnel or protection of property.

1.3 Important Notices

Accessories - Do not place this unit on an unstable stand, tripod, bracket, or mount. The unit may fall, causing serious injury and/or serious damage to the unit. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer. When a cart is used, use caution and care when moving the cart/apparatus combination to avoid injury from tip-over. Quick stops, excessive force, or uneven surfaces may cause the cart/unit combination to overturn. Mount the unit per the manufacturer's instructions.

All-pole power switch - Incorporate an all-pole power switch, with a contact separation of at least 3 mm in each pole, into the electrical installation of the building.
If it is needed to open the housing for servicing and/or other activities, use this all-pole switch as the main disconnect device for switching off the voltage to the unit.

Camera grounding - For mounting the camera in potentially damp environments, ensure to ground the system using the ground connection of the power supply connector (see section: Connecting external power supply).

Camera lens - An assembled camera lens in the outdoor housing must comply and be tested in accordance with *UL/IEC60950.* Any output or signal lines from the camera must be SELV or Limited Power Source. For safety reasons the environmental specification of the camera lens assembly must be within the environmental specification of -10 °C (14 °F) to 50 °C (122 °F).

Camera signal - Protect the cable with a primary protector if the camera signal is beyond 140 feet, in accordance with *NEC800 (CEC Section 60)*.

Coax grounding:

– Ground the cable system if connecting an outside cable system to the unit.
– Connect outdoor equipment to the unit's inputs only after this unit has had its grounding plug connected to a grounded outlet or its ground terminal is properly connected to a ground source.

– Disconnect the unit's input connectors from outdoor equipment before disconnecting the grounding plug or grounding terminal.
– Follow proper safety precautions such as grounding for any outdoor device connected to this unit.

U.S.A. models only - *Section 810* of the *National Electrical Code, ANSI/NFPA No.70*, provides information regarding proper grounding of the mount and supporting structure, grounding of the coax to a discharge unit, size of grounding conductors, location of discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

NOTICE!
This device is intended for use in public areas only.
U.S. federal law strictly prohibits surreptitious recording of oral communications.

Your Bosch product was developed and manufactured with high-quality material and components that can be recycled and reused. This symbol means that electronic and electrical appliances, which have reached the end of their working life, must be collected and disposed of separately from household waste material. Separate collecting systems are usually in place for disused electronic and electrical products. Please dispose of these units at an environmentally compatible recycling facility, per European Directive 2002/96/EC.

Environmental statement - Bosch has a strong commitment towards the environment. This unit has been designed to respect the environment as much as possible.

Electrostatic-sensitive device - Use proper CMOS/MOS-FET handling precautions to avoid electrostatic discharge.

NOTE: Wear required grounded wrist straps and observe proper ESD safety precautions when handling the electrostatic-sensitive printed circuit boards.

Fuse rating - For security protection of the device, the branch circuit protection must be secured with a maximum fuse rating of 16A. This must be in accordance with *NEC800 (CEC Section 60)*.

Grounding and polarization - This unit may be equipped with a polarized alternating current line plug (a plug with one blade wider than the other blade). This safety feature allows the plug to fit into the power outlet in only one way. If unable to insert the plug fully into the outlet, contact a locally certified electrician to replace the obsolete outlet. Do not defeat the safety purpose of the polarized plug.

Alternately, this unit may be equipped with a 3-pole grounding plug (a plug with a third pin for earth grounding). This safety feature allows the plug to fit into a grounded power outlet only. If unable to insert the plug into the outlet, contact a locally certified electrician to replace the obsolete outlet. Do not defeat the safety purpose of the grounding plug.

Moving - Disconnect the power before moving the unit. Move the unit with care. Excessive force or shock may damage the unit and the hard disk drives.

Outdoor signals - The installation for outdoor signals, especially regarding clearance from power and lightning conductors and transient protection, must be in accordance with *NEC725* and *NEC800 (CEC Rule 16-224* and *CEC Section 60)*.

Permanently connected equipment - Incorporate a readily accessible disconnect device in the building installation wiring.

Pluggable equipment - Install the socket outlet near the equipment so it is easily accessible.

PoE - Never supply power via the Ethernet connection (PoE) when power is already supplied via the power connector.

Power disconnect - Units have power supplied whenever the power cord is inserted into the power source. The power cord is the main power disconnect for all units.

Power lines - Do not locate the camera near overhead power lines, power circuits, or electrical lights, nor where it may contact such power lines, circuits, or lights.

SELV

All the input/output ports are Safety Extra Low Voltage (SELV) circuits. SELV circuits should only be connected to other SELV circuits.

Because the ISDN circuits are treated like telephone-network voltage, avoid connecting the SELV circuit to the Telephone Network Voltage (TNV) circuits.

Video loss - Video loss is inherent to digital video recording; therefore, Bosch Security Systems cannot be held liable for any damage that results from missing video information. To minimize the risk of lost digital information, Bosch Security Systems recommends multiple, redundant recording systems, and a procedure to back up all analog and digital information.

NOTICE!

This is a class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

FCC & ICES INFORMATION

(U.S.A. and Canadian Models Only)

This device complies with *part 15* of the *FCC Rules*. Operation is subject to the following conditions:

– this device may not cause harmful interference, and
– this device must accept any interference received, including interference that may cause undesired operation.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules and ICES-003 of Industry Canada. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and radiates radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his expense.

Intentional or unintentional modifications, not expressly approved by the party responsible for compliance, shall not be made. Any such modifications could void the user's authority to operate the equipment. If necessary, the user should consult the dealer or an experienced radio/television technician for corrective action.

The user may find the following booklet, prepared by the Federal Communications Commission, helpful: How to Identify and Resolve Radio-TV Interference Problems. This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

INFORMATIONS FCC ET ICES

(modèles utilisés aux États-Unis et au Canada uniquement)

Ce produit est conforme aux normes FCC partie 15. la mise en service est soumises aux deux conditions suivantes:

– cet appareil ne peut pas provoquer d'interférence nuisible et
– cet appareil doit pouvoir tolérer toutes les interférences auxquelles il est soumit, y compris les interférences qui pourraient influer sur son bon fonctionnement.

AVERTISSEMENT: Suite à différents tests, cet appareil s'est révélé conforme aux exigences imposées aux appareils numériques de Classe A en vertu de la section 15 du règlement de la Commission fédérale des communications des États-Unis (FCC). Ces contraintes sont destinées à fournir une protection raisonnable contre les interférences nuisibles quand l'appareil est utilisé dans une installation commerciale. Cette appareil génère, utilise et émet de l'energie de fréquence radio, et peut, en cas d'installation ou d'utilisation non conforme aux instructions, générer des interférences nuisibles aux communications radio. L'utilisation de ce produit dans une zone résidentielle peut provoquer des interférences nuisibles. Le cas échéant, l'utilisateur devra remédier à ces interférences à ses propres frais.

Au besoin, l'utilisateur consultera son revendeur ou un technicien qualifié en radio/télévision, qui procédera à une opération corrective. La brochure suivante, publiée par la Commission fédérale des communications (FCC), peut s'avérer utile : « How to Identify and Resolve Radio-TV Interference Problems » (Comment identifier et résoudre les problèmes d'interférences de radio et de télévision). Cette brochure est disponible auprès du U.S. Government Printing Office, Washington, DC 20402, États-Unis, sous la référence n° 004-000-00345-4.

AVERTISSEMENT: Ce produit est un appareil de Classe A. Son utilisation dans une zone résidentielle risque de provoquer des interférences. Le cas échéant, l'utilisateur devra prendre les mesures nécessaires pour y remédier.

Disclaimer

Underwriter Laboratories Inc. ("UL") has not tested the performance or reliability of the security or signaling aspects of this product. UL has only tested fire, shock and/or casualty hazards as outlined in UL's *Standard(s) for Safety for Closed Circuit Television Equipment, UL 2044*. UL Certification does not cover the performance or reliability of the security or signaling aspects of this product.

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1.4 Customer Support and Service

If this unit needs service, contact the nearest Bosch Security Systems Service Center for authorization to return and shipping instructions.

Service Centers

USA

Telephone: 800-366-2283 or 585-340-4162
Fax: 800-366-1329
Email: cctv.repair@us.bosch.com

Customer Service

Telephone: 888-289-0096
Fax: 585-223-9180
Email: security.sales@us.bosch.com

Technical Support

Telephone: 800-326-1450
Fax: 585-223-3508 or 717-735-6560
Email: technical.support@us.bosch.com

Repair Center

Telephone: 585-421-4220
Fax: 585-223-9180 or 717-735-6561
Email: security.repair@us.bosch.com

Canada

Telephone: 514-738-2434
Fax: 514-738-8480

Europe, Middle East & Asia Pacific Region

Telephone: 44 (0) 1495 274558
Fax: 44 (0) 1495 274280
Email: rmahelpdesk@solectron.com

More information

For additional information, please contact your Bosch Security Systems representative or visit our web site at www.boschsecurity.com

2 Unpacking

This equipment should be unpacked and handled with care. If an item appears to have been damaged in shipment, notify the shipper immediately.
Verify that all the parts listed in the Parts List below are included. If any items are missing, notify your Bosch Security Systems Sales or Customer Service Representative.
The original packing carton is the safest container in which to transport the unit and must be used if returning the unit for service. Save it for possible future use.

2.1 Parts List

The following table lists the parts included:

Quantity	Part
1	UML-150-90, UML-170-90, or UML-190-90 Color LCD Flat Panel Monitor
1	Installation manual
2	Power Cords, 3-wire with grounded plug 1.8 m (6 ft) long: one with a U.S plug type and one with a European Continental plug type
1	VGA to VGA (D-SUB) cable, 1.5 m (5 ft)
1	Power Supply (brick): UML-150-50: 12 VDC, 3.3 A, 100–240 VAC, 50/60 Hz UML-170-50: 12 VDC, 4.1 A, 100–240 VAC, 50/60 Hz UML-190-90: 12 VDC, 4.1 A, 100-240 VAC, 50/60 Hz

3 Exploded View

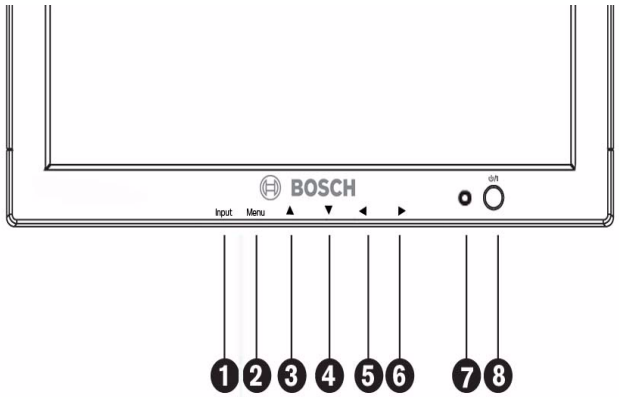


Figure 3.1 Front Panel

Reference #	Button	Description	
1	Input Button	Selects the signal to be displayed. Choices are: PC, AV1, AV2, or S-Video.	
2	Menu Button	Selects the on-screen display (OSD).	
3	▲	Adjusts the value when in the OSD.	Scrolls up in the OSD.
4	▼	Adjusts the value when in the OSD or auto adjusts when in PC mode.	Scrolls down in the OSD.
5	◀	Decreases the value when in the OSD.	Scrolls left in the OSD.
6	▶	Increases the value when in the OSD.	Scrolls right in the OSD.
7	Not Used		
8	Power Button / LED Indicator	Power On (green) Standby (amber) Unsupported Mode (green) Power Off (red)	

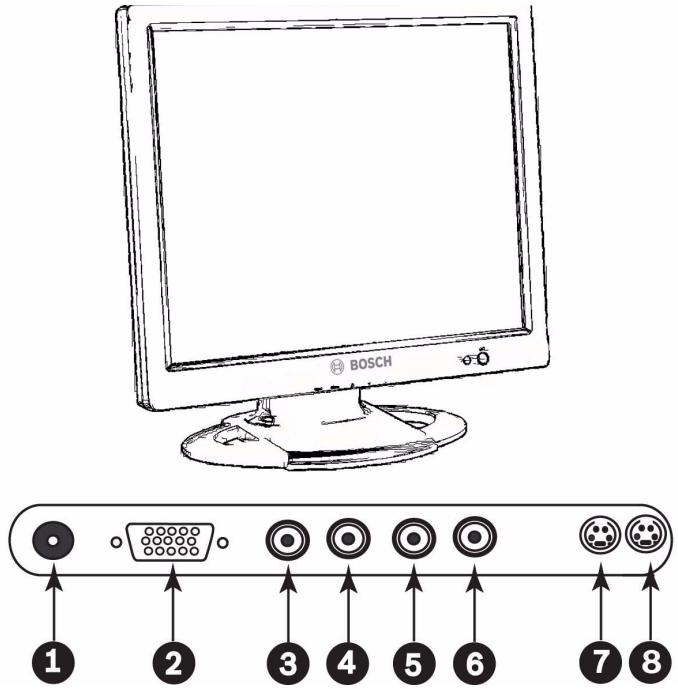


Figure 3.2 Bottom Panel

Reference #	Connector	Description
1	DC 12 V IN	UML-150-50: 3.3 A UML-170-50: 4.1 A UML-190-90: 4.1 A
2	D-SUB IN	PC Signal Input
3	VIDEO 1 (AV1) IN	Composite signal input for AV1
4	VIDEO 1 (AV1) OUT	Video looping output for AV1
5	VIDEO 2 (AV2) IN	Composite signal input for AV2
6	VIDEO 2 (AV2) OUT	Video looping output for AV2
7	S-VIDEO (Y/C) IN	Y/C separated signal input
8	S-VIDEO (Y/C) OUT	Y/C separated signal looping output

4 Description

The Bosch General Purpose Family of LCD monitors display PAL or NTSC standard color pictures in CCTV systems. Two (2) looping Composite Video BNC connector inputs and one (1) looping Y/C (S-Video) input using a 4-pin mini-DIN are included with each model. In addition, each works with a VGA signal.

Monitor control functions are accessed via the front panel push buttons and the multi-language On-screen Display (OSD). See *Figure 3.1* for front panel descriptions.

4.1 Features

The General Purpose LCD Color Panel Display Monitor Series are designed to display Analog VGA and Composite Video signals.

- 15-inch, 17-inch, and 19-inch models
- 100-240 VAC Power Supply
- NTSC/PAL Auto-Detect
- High-resolution Display
  - 1024 x 768 (UML-150-90)
  - 1280 x 1024 (UML-170-90)
  - 1280 x 1024 (UML-190-90)
- VGA Input
- Composite Video Input
- Y/C Input (S-Video)
- On-screen Display (OSD) with Multiple Languages

4.2 Power

Model No.	Rated Voltage	Voltage Range	Power at Rated Voltage	Sync Format
UML-150-90	120/230 VAC, 50/60 Hz	100-240 VAC	25 W (max)	NTSC/PAL
UML-170-90	120/230 VAC, 50/60 Hz	100-240 VAC	40 W (max)	NTSC/PAL
UML-190-90	120/230 VAC, 50/60 Hz	100-240 VAC	45 W (max)	NTSC/PAL

5 Installing the Monitor

This chapter outlines the procedures to install the UML-150-90, UML-170-90, or the UML-190-90. A qualified service person should install the monitor and adhere to all local codes.

5.1 Ventilation

To prevent overheating, ensure that the ventilation openings on the rear of the monitor are not covered.

5.2 Mounting the Monitor

The UML-150-90, UML-170-90, and the UML-190-90 are designed for use on a desktop or mounted to a wall or rack.

5.2.1 Desktop Installation

The Bosch General Purpose monitors are delivered with a 3-pole US-style power cord and a 3-pole Euro-style power cord. Use the US-style power cord where 120 VAC, 60 Hz power is available; use the Euro-style power cord where 230 VAC, 50 Hz power is available. The monitor automatically adjusts to either power input voltage.

5.2.2 Wall Mount Installation

The square mounting holes (100 mm [3.9 in.] centers) are compatible with the Bosch UMM-LW-20B fixed wall mount or the UMM-LW-30B swivel/tilt. To install the wall mount, do the following:

1. Remove the base from the LCD panel section by unscrewing the four (4) holding screws before separating the base from the panel. NOTE: Save screws for future use.

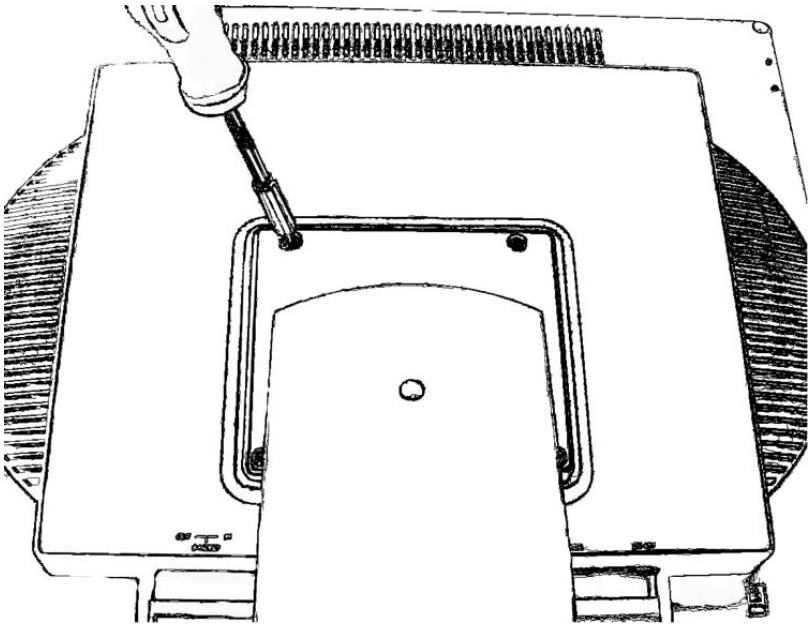


Figure 5.1 Removing the Base

2. Mount the unit to the mounting device (not provided) using the four (4) mounting holes on the rear panel. The square mounting hole patterns are standard on 100 mm (3.9 in.) centers.

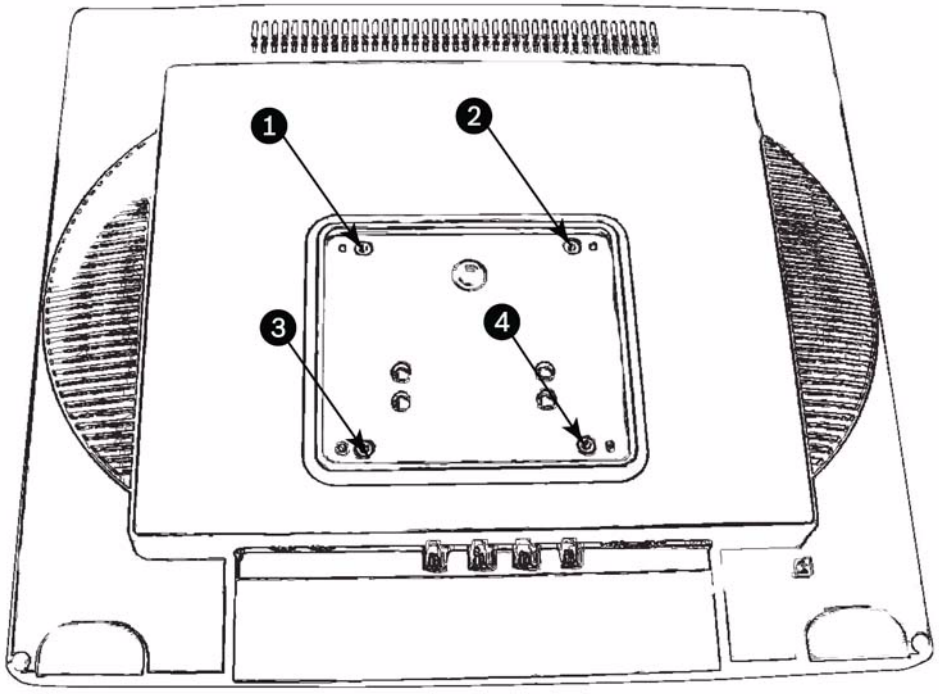


Figure 5.2 Mounting the Device

5.3 Connecting the Composite Video Signal to the Monitor

There are two (2) BNC connectors located on the rear of the monitor for composite video input and two (2) BNC connectors for composite video outputs (see *Figure 3.2*).
NOTE: All video inputs are active loop-through. The impedance is automatically set to 75 ohm by the input of the signal on the input connector, while operating in a single connection mode (see *Figure 5.5*). If a cable is also connected to the output connector, the video signal can be passed on to another monitor connected to it via the active loop-through function. Up to three (3) monitors may be connected in this manner (see *Figure 5.6*).

NOTICE! To select between AV1 and AV2, press Input (*Figure 3.1*, Item 1) located on the front of the monitor

5.4 Connecting the Y/C (S-Video) Signal to the Monitor

There is one (1) mini-DIN type connector for the S-Video (Y/C) input (see *Figure 5.3*).
NOTE: Both Y and C inputs are terminated with 75 ohm.

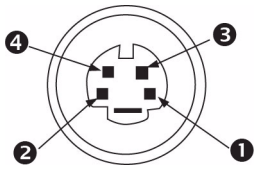


Figure 5.3 Y/C Connection Pinout

Reference	Input
1	GND
2	GND
3	Y-signal IN or OUT
4	C-signal IN or OUT

5.5 Connecting the PC Signal to the Monitor

The monitor can be connected to the analog VGA signal by using the provided VGA cable (D-SUB to D-SUB).

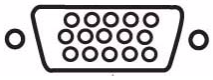


Figure 5.4 VGA Input

5.6 Single / Multiple Monitor Configuration

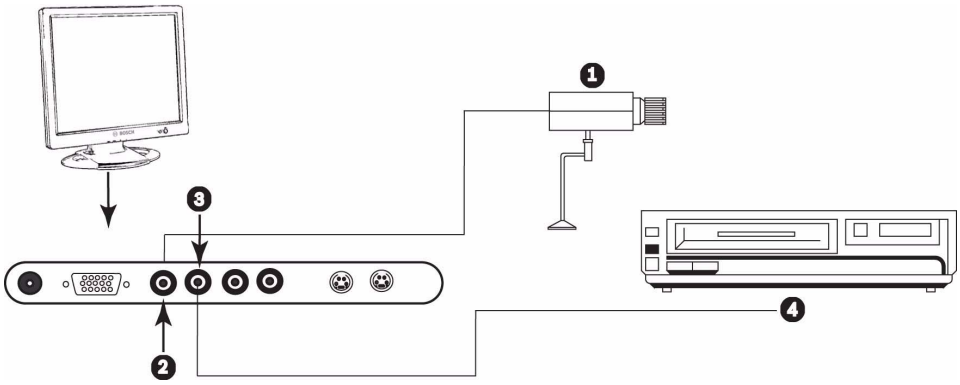


Figure 5.5 Single Monitor Configuration

Reference #	Description
1	Video Camera
2	VIDEO 1 (AV1) IN
3	VIDEO 1 (AV1) OUT
4	VCR

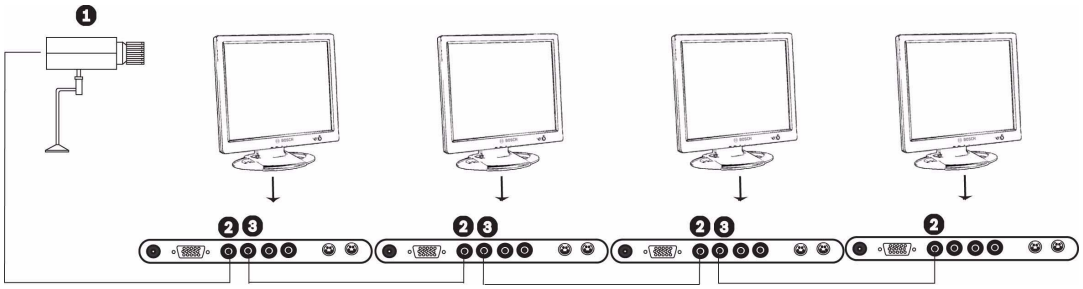


Figure 5.6 Multiple Monitor Configuration

Reference #	Description
1	Video Camera
2	VIDEO 1 (AV1) IN
3	VIDEO 1 (AV1) OUT

6 Navigating the Monitor

6.1 Navigating the Front Panel

Use the front panel to make any necessary OSD adjustments to the UML-150-90, UML-170-90, or the UML-190-90. See the figure below for an explanation of the front panel.

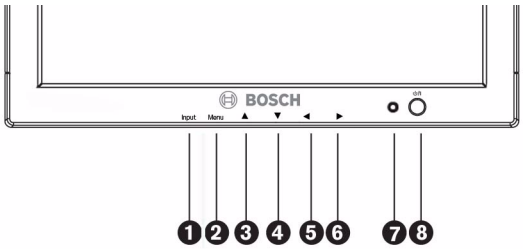


Figure 6.1 Front Panel Buttons

Reference #	Button	Description	
1	Input Button	Selects the signal to be displayed. Choices are: PC, AV1, AV2, or S-Video.	
2	Menu Button	Selects the on-screen display (OSD).	
3	▲	Adjusts the value when in the OSD.	Scrolls up in the OSD.
4	▼	Adjusts the value when in the OSD or auto adjusts when in PC mode.	Scrolls down in the OSD.
5	◀	Decreases the value when in the OSD.	Scrolls left in the OSD.
6	▶	Increases the value when in the OSD.	Scrolls right in the OSD.
7	Not Used		
8	Power Button / LED Indicator	Power On (green) Standby (amber) Unsupported Mode (green) Power Off (red)	

6.2 Navigating the Monitor On-screen Display (OSD)

The UML-150-90, UML-170-90, and the UML-190-90 have two (2) modes: Video and VGA. The LCD is programmed through the on-screen display (OSD) menus and submenus where an operator can select operating parameters. To access the OSD menus, press the Menu button. Use the front panel of the monitor to make any necessary adjustments to the OSD.

To navigate the set up menus, follow the steps below:

1. Connect the CVBS or VGA cable.
2. If required, press the Input button until a signal is displayed. NOTE: Menus are not available without a signal applied.
3. Press the Power button to turn on the unit (see *Figure 3.1*).
4. Press the Menu button to activate the main menu selections (see *Figure 3.1*).
5. Press the ▲and the ▼buttons to select a main menu.
6. Press the Menu button to enter a selected menu.

7. Press the ◀and the ▶button to toggle the OSD values.
8. When finished, scroll to Exit and press the Menu button. Note: If there is no Exit button, press the Menu button.

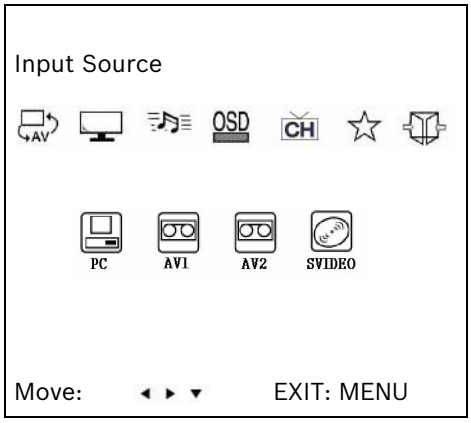
6.3 On-screen Display Menus

There are five (5) on-screen menus that allow you to customize your settings. Press the Menu button to access the OSD menu.

Icon	Menu	Function
	Input Source	Enables or disables the input selections. Selects the video source. Choices are: PC, AV1, AV2, or S-Video.
	Screen	Adjusts the Brightness, Contrast, Saturation, Hue, and the Sharpness level for video performance of the OSD.
	Audio	Not available.
	OSD (on-screen display)	Adjusts the H. Position, V. Position, Transparency, OSD Timer, and Language. Language choices are: English, French, German, Italian, Dutch, and Spanish.
	Color (PC mode)	Adjusts the color temperature to 9300, 6500, or user (factory default is 9300).
	Not available.	
	Utility	Enables the user to reset all settings to the factory default values, and allows the user to lock or unlock the control key.
	Exit	Enables the user to turn on and off the OSD menu, and displays the following information: horizontal frequency, vertical frequency, and the firmware version number.

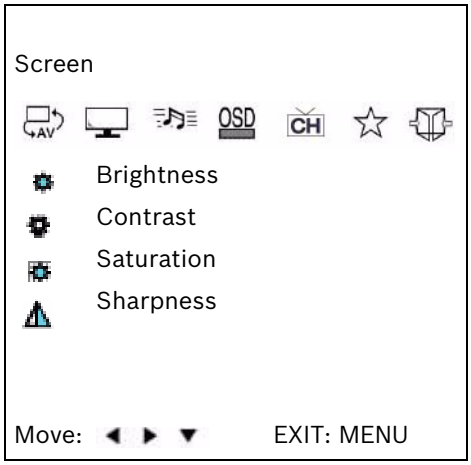
6.4 Video Mode

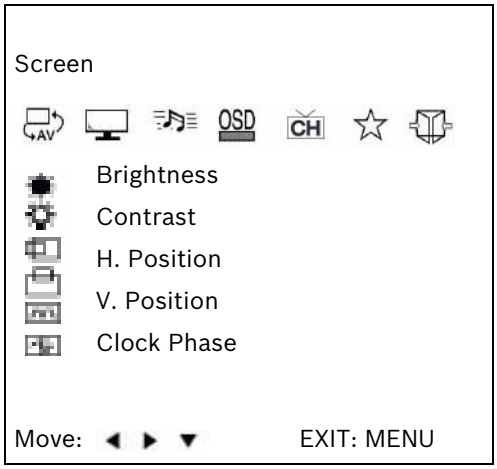
To access the Input Source submenu, press the Menu button on the front panel of the monitor, then press the arrows to select the Input Source submenu.



6.5 Screen

To access the Screen submenu, press the Menu button on the front panel of the monitor, then press the left and right arrows to select the Screen icon. Press the up and down arrows to select the Screen submenu.





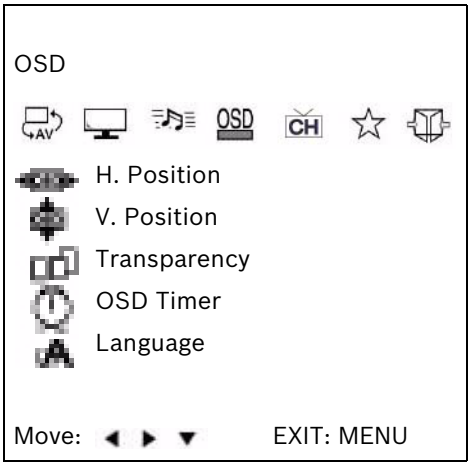
Submenu	Definition
Brightness	Adjusts the brightness level for video performance (range 0-100%).
Contrast	Adjusts the contrast level for video performance (range 0-100%).
Saturation	Adjusts the saturation level for video performance (range 0-100%).
Sharpness	Adjusts the sharpness level for video performance (range 0-100%).
H. Position (PC mode)	Adjusts the horizontal position for the desktop (range 0-100%).
V. Position (PC mode)	Adjusts the vertical position for the desktop (range 0-100%).
Clock	Adjusts the best picture quality by adjusting the horizontal size of the video displayed (range 0-100%).
Phase	Adjusts for best picture quality by adjusting for sharpness of vertical lines (range 0-100%).

6.6 Audio

Not available on this monitor.

6.7 OSD

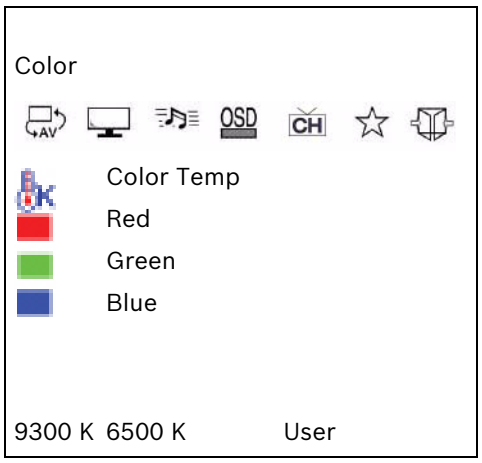
To access the OSD submenu, press the Menu button on the front panel of the monitor, then press the left and right arrows to select the OSD icon. Press the up and down arrows to select the OSD submenu.



Submenu	Definition
H. Position	Adjusts the horizontal position for the OSD menu (range 0-100%).
V. Position	Adjusts the vertical position for the OSD menu (range 0-100%).
Transparency	Adjusts the transparency level for video performance (0, 25, 50, and 100% increments).
OSD Timer	Adjusts the on-screen display time (range 5s-20s).
Language	Adjusts the language of the OSD. Choices are: English, French, German, Italian, Dutch, and Spanish.

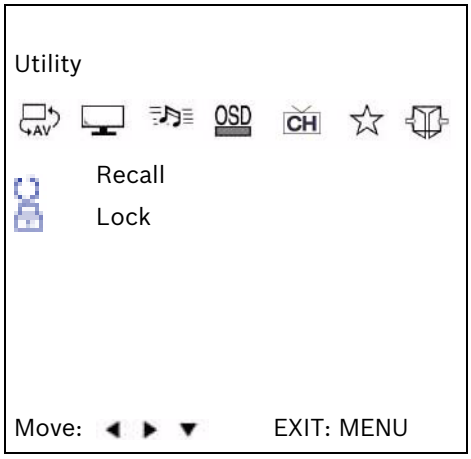
6.8 Color (PC mode)

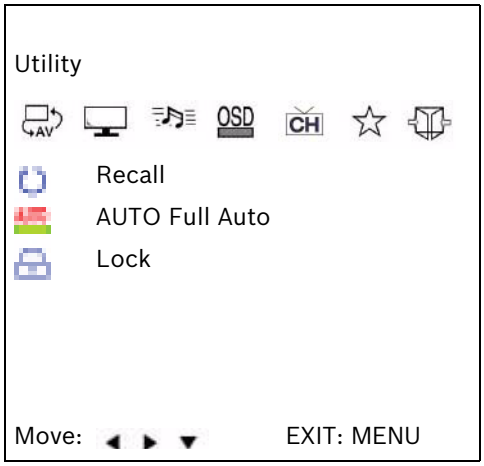
To access the Color submenu, press the Menu button on the front panel of the monitor, then press the left and right arrows to select the Color icon. Press the up and down arrows to select the Color submenu (range 0-100%).



6.9 Utility

To access the Utility submenu, press the Menu button on the front panel of the monitor, then press the left and right arrows to select the Utility icon. Press the up and down arrows to select the Utility submenu.

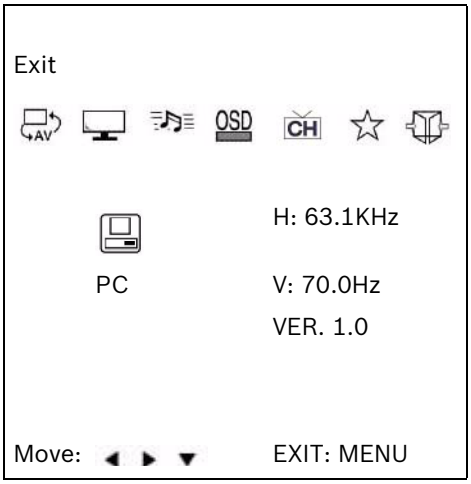




Submenu	Definition
Recall	Restores default settings.
AUTO Full Auto	Auto synchronizes the screen to the graphics adaptor. When selected, displays “Auto in Process...”.
Lock	Locks user from accessing the monitor OSD menus. To unlock, hold down the menu and up arrow keys together for three (3) seconds.

6.10 Exit

To access the Exit submenu, press the Menu button on the front panel of the monitor, then press the left and right arrows to select the Exit icon, then press the menu buttons to exit the OSD.



7 Power Management

These monitors feature a power management system to “power down” upon receipt of the display power management signaling (DPMS) from a DPMS video card.
To conserve energy and extend monitor life, these monitors automatically start a power saving mode when the input signal disappears (such as when a PC enters sleep mode). The power saving mode is active when the LED on the control button panel switches from green to amber and normal operation resumes automatically when the input signal is restored.
The monitor enters an appropriate mode through identifying each of the three modes of the signaling system.

7.1 Power Consumption

Mode	**150**	**170**	**190**
ON	25 W	40 W	45 W
STANDBY	< 5.0 W	< 5.0 W	< 5.0 W

7.2 LED Indicator

The power management feature of the monitor is comprised of four stages: On (green), Standby (amber), Unsupported mode (green), and Power Off (red).

8 Trouble Shooting Guide

Problem	Solution
No image is displayed on screen	– Check that the power cord of the monitor is securely connected into the wall outlet or grounded extension cable or strip. – Power switch should be in the ON position and the LED lit. – Check that the Brightness and/or Contrast adjustments of the display have not been turned down to minimum levels.
“Check Input Signal” message is displayed in PC mode	– The signal cable should be completely connected to the video card/ computer. – The video card should be completely seated in its slot and the computer switched ON.
Display image is not centered, is too small, or too large in the PC mode	Push the down key to activate the Autoset function.
Vertical or horizontal noise is present in the picture	Adjust the Clock and Phase in the OSD submenu.
Incorrect colors	– Press the Menu button on the front panel of the monitor, then press the right arrow to select the Color menu. Press the down arrow on the front panel and select 9300K or 6500K. - or - – Press the Menu button on the front panel of the monitor, then press the right arrow to select the Utility menu. Press the down arrow on the front panel and select Recall to reset to the default settings.
The error message “Unsupport Mode” is displayed	PC is operating with either a resolution or timing mode that is not supported. Change the PC timing mode to one of the valid combinations below: Timing mode 640 x 480; 60/72/75 Hz 800 x 600; 60/72/75 Hz 1024 x 768; 60/70/75 Hz 1280 x 1024; 60/75 Hz

9 Maintenance

To clean the LCD panel, wipe off water droplets or oil immediately with absorbent cotton or a soft lint-free cloth. Staining and discoloration may occur if left on the panel for long periods. If the surface (polarizer) of the LCD panel is dirty or stained, use absorbent cotton or a soft lint-free cloth to remove the residue as follows:

1. Turn off the computer or display.
2. Do not spray any liquid directly on the screen. Dampen a clean, soft, lint-free cloth with water only (using a paper towel or dirty cloth can scratch the screen).
3. Gently wipe the screen starting from the top of the screen to bottom wiping in a downward motion. Be careful not to press too hard to avoid damaging the screen.
4. To avoid streaking, wipe the screen again with another clean, dry, lint-free cloth.

NOTICE! If water does not work, use a mild cleaner labeled for use with LCD panels, available at office supply stores.

Do not use any of the following as a cleaning agent:

- Ketone type materials
- Ethyl alcohol
- Ethyl acid
- Toluene
- Methyl chloride
- Ammonia

Use of these materials may permanently damage the polarizer due to a chemical reaction.

10 Technical Specifications

	UML-150-90	UML-170-90	UML-190-90
Electrical			
Rated Voltage	120/230 VAC, 50/60 Hz	120/230 VAC, 50/60 Hz	120/230 VAC, 50/60 Hz
Voltage Range	100-240 VAC	100-240 VAC	100-240 VAC
Power at Rated Voltage	25 W operation, 5 W standby	40 W operation, 5 W standby	45 W operation, 5 W standby
Sync Format	PAL/NTSC	PAL/NTSC	PAL/NTSC
LCD Panel	TFT LCD	TFT LCD	TFT LCD
Screen Size (H x V)	304.1 x 228.1 mm (12.0 x 9.0 in.)	338.0 x 270.0 mm (13.3 x 10.6 in.)	376.0 x 301.0 mm (14.8 x 11.9 in.)
Viewable Picture Area	15 in. (381 mm) measured diagonally	17 in. (432 mm) measured diagonally	19 in. (483 mm) measured diagonally
Pixel Pitch (H x V)	0.297 x 0.297 mm (0.01 x 0.01 in.)	0.264 x 0.264 mm (0.01 x 0.01 in.)	0.294 x 0.294 mm (0.01 x 0.01 in.)
Resolution	1024 x 768 pixels, 400 TV lines typical	1280 x 1024 pixels, 400 TV lines typical	1280 x 1024 pixels, 400 TV lines typical
Aspect Ratio	4:3	5:4	5:4
Display Colors	16.2 million colors	16.2 million colors	8-bit interface; 16.7 million colors
Response Time	< 12 ms	< 5 ms	5 ms
Backlight	Two (2) cold cathode fluorescent tubes, rated life 50,000 hours	Two (2) cold cathode fluorescent tubes, rated life 50,000 hours	Four (4) cold cathode fluorescent tubes, rated life 50,000 hours
LCD Panel Optical Characteristics			
Luminance	250 cd/m, anti-glare, hard-coating treatment	300 cd/m, anti-glare, hard-coating treatment	300 cd/m, anti-glare, hard-coating treatment
Contrast Ratio (CR)	450:1	1000:1	800:1
Viewing Angle (Horizontal/Vertical)	130°/110°	160°/160°	160°/160°
Video Input			
Composite Video (CVBS)	1.0 Vp-p (0.5–1.5 Vp-p), automatic switching from 75 W unbalanced termination to Hi-Z with passive loop-through operation		
Y/C (S-video)	0.7 Vp-p (Y-signal), 0.3 Vp-p (C-signal), 75 W termination		

PC Input			
Analog RGB	0.7 Vp-p (0.5–1 Vrms)		
PC Timing Modes			
640 x 480	60/72/75 Hz	60/72/75 Hz	60/72/75 Hz
800 x 600	60/72/75 Hz	60/72/75 Hz	60/72/75 Hz
1024 x 768	60/70/75 Hz	60/70/75 Hz	60/70/75 Hz
1280 x 1024		60/75 Hz	60/75 Hz

Controls	
Front Panel	Push-buttons
Input	Selects: Video1, Video2, S-video, VGA
Menu	Selects on-screen display (OSD), up cursor, down cursor/auto adjust, left cursor, right cursor
Power	On/Off
Front Panel Lockout	Multiple push-button combination

On-screen Display	
Video Mode	Input Source, Screen, OSD, Utility
PC Mode	Input Screen, OSD, Color, Utility

Indicators	
LED	Power On (green) Standby (amber) Unsupported Mode (green) Power Off (red)
On-screen	VGA: Check input signal Video: Flashes “AV1” or “AV2” when there is a black screen

Connectors			
Video 1 (AV1)	Composite video: two (2) BNC (1 in, 1 out)		
Video 2 (AV2)	Composite video: two (2) BNC (1 in, 1 out)		
Y/C (S-video)	Two (2) mini-DIN, 4-pin (1 in, 1 out)		
RGB	One (1) VGA cable included		
Power Input	5.5 mm DC input jack		
Power Adapter (included)	Input: 100–240 VAC, 50/60 Hz Output: 12 VDC, 3.3 A	Input: 100–240 VAC, 50/60 Hz Output: 12 VDC, 4.1 A	Input: 100–240 VAC, 50/60 Hz Output: 12 VDC, 4.1 A

Mechanical			
Cabinet Material	ABS plastic		
Finish	Black		
Mount	Wall mounting compatible with standard bracket, 100-mm centers, M4 thread		
Dimensions (W x H x D)			
Monitor with Base	352 x 355 x 200 mm (13.86 x 14.0 x 7.9 in.)	382.4 x 390.5 x 200.0 mm (15.1 x 15.4 x 7.9 in.)	430 x 428 x 200 mm (16.9 x 16.9 x 7.9 in.)
Monitor Only	352 x 292 x 58 mm (13.9 x 11.5 x 2.2 in.)	382.4 x 330.0 x 58.7 mm (15.1 x 13.0 x 2.3 in.)	420 x 374 x 60 mm (16.9 x 14.7 x 2.4 in.)
Weight			
Monitor with Base	3.7 kg (8.1 lb)	6.6 kg (14.6 lb)	7.6 kg (16.9 lb)
Monitor Only	2.5 kg (5.6 lb)	4.1 kg (9.05 lb)	5.9 kg (13.1 lb)

Environmental	
Operating Temperature	0°C to 40°C (32°F to 104°F)
Storage Temperature	–20°C to 60°C (–4°F to 140°F)
Humidity	Maximum 90%, non-condensing

Parts Included

One (1) Bosch General Purpose Color LCD Flat Panel Monitor
One (1) VGA to VGA cable
Two (2), 3-wire power cords with a grounded plug: one (1) with a European/Continental plug type and one (1) with a U.S. plug type

Americas
Bosch Security Systems, Inc.
850 Greenfield Road
Lancaster, Pennsylvania 17601
USA
Telephone +1 888-289-0096
Fax +1 585-223-9180
Email: security.sales@us.bosch.com
www.boschsecurity.us

Europe, Middle East, Africa:
Bosch Security Systems B.V.
P.O. Box 80002
5600 JB Eindhoven, The Netherlands
Phone: + 31 40 2577 284
Fax: +31 40 2577 330
emea.securitysystems@bosch.com
www.boschsecurity.com

Asia-Pacific:
Bosch Security Systems Pte Ltd
38C Jalan Pemimpin
Singapore 577180
Phone: +65 6319 3450
Fax: +65 6319 3499
apr.securitysystems@bosch.com
www.boschsecurity.com

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